

**ABSTRACT OF THE DISCLOSURE**

An apparatus for remote detection of selected trace constituents in a fluid, for example flue gases from a stack, has a laser for generating a laser beam. The laser beam is transmitted through the fluid and the returned laser beam is detected after transmission through the fluid. A detector receives the returned laser beam, to detect the presence of any of the selected trace constituents, by comparison of the transmitted and returned beams. An optical fiber connection means, which can comprise either a single optical fiber or a pair of optical fibers, provides a connection between ~~at least one of (i) the laser and a transmitter for the laser beam, and (ii) a~~ receiver for the laser beam and the detector. This enables the detector and the laser to be located remotely and away from hostile environments.